Record of Decision
Seven Transformer Sites
NAVAL COMPUTER AND TELECOMMUNICATIONS AREA MASTER STATION PACIFIC
OAHU, HAWAII

September 2007

Commander
Naval Facilities Engineering Command, Hawaii
400 Marshall Road, Building X-11
Pearl Harbor, HI 96860-3139

Comprehensive Long-Term Environmental Action Navy
Contract Number N62742-94-D-0048, CTO 0004

CONTENTS

ACRONYMS AND ABBREVIATIONS

AM	action memorandum
AOPC	area of potential contamination
AR	administrative record
ARAR	applicable or relevant and appropriate requirement
bcy	bank cubic yard
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
COC	contaminants of concern
CSM	conceptual site model
cy	cubic yard
DDT	definitive demonstration test
DOH	State of Hawaii Department of Health
Earth Tech	Earth Tech, Inc.
EE/CA	engineering evaluation/cost analysis
EPA	U.S. Environmental Protection Agency
FFA	Federal Facilities Agreement
FRS	Former Rigger Shop
IAS	initial assessment study
mg/kg	milligram per kilogram
MILCON	military construction
NAS	Naval Air Station
NAVFAC Hawaii	Naval Facilities Engineering Command, Hawaii
NAVFAC PAC	Naval Facilities Engineering Command, Pacific
NCP	National Oil and Hazardous Substances Pollution Contingency Plan
NCTAMSPAC	Naval Computer and Telecommunications Area Master Station Pacific
NEESA	Naval Energy and Environmental Support Activity
NPL	National Priorities List
NRTF	Naval Radio Transmitting Facility
NTCRA	non-time-critical removal action
PCB	polychlorinated biphenyls
PHNC	Pearl Harbor Naval Complex
PRC	PRC Environmental Management, Inc.
PWC	Public Works Center
RAB	restoration advisory board
RCRA	Resource Conservation and Recovery Act
ROD	record of decision
RVR	remediation verification report
SAL	soil action level
SARA	Superfund Amendments and Reauthorization Act
SI	site inspection
TBC	to-be-considered
TSCA	Toxic Substances Control Act

1. Declaration

1.1 SITE NAME AND LOCATION

This record of decision (ROD) has been prepared for seven transformer sites at Naval Computer and Telecommunications Area Master Stations Pacific (NCTAMSPAC) located on Oahu, Hawaii. NCTAMSPAC operates at several locations around the island of Oahu including NCTAMSPAC Wahiawa Branch and Naval Radio Transmitting Facility (NRTF) Lualualei (Figure 1), which are the subjects of this ROD.

Three transformer sites are located at NCTAMSPAC Wahiawa Branch, Oahu, Hawaii:

- Building 236
- Building 261
- Building 343

Four transformer sites are located at NRTF Lualualei, Oahu, Hawaii:

- Building 1
- Building 68
- Former S84
- Former Rigger Shop (FRS)

The U.S. Navy completed Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) non-time-critical removal actions (NTCRA) at these seven transformer sites. NCTAMSPAC is currently on the National Priorities List (NPL) maintained by the U.S. Environmental Protection Agency (EPA) (Comprehensive Environmental Response, Compensation and Liability Information System Identification Number HI0170090054) and was listed on the NPL on May 31, 1994.

1.2 STATEMENT OF BASIS AND PURPOSE

This ROD presents the no further action decision for seven transformer sites at NCTAMSPAC. The final decision was chosen in accordance with CERCLA, as amended by the Superfund Amendments and Reauthorization Act (SARA), the National Oil and Hazardous Substances Pollution Contingency Plan (NCP), and the Office of the President of the United States, Executive Orders 12088 and 12580. Information supporting the decisions leading to the selected remedy is contained in the administrative record (AR) files for these sites. The Navy and EPA, with concurrence by the State of Hawaii Department of Health (DOH), select no further action as the final remedy for these transformer sites. Concurrence is indicated by the signature in Section 1.6.

1.3 ASSESSMENT OF THE SITE

Polychlorinated biphenyl (PCB)-contaminated surface and subsurface soil was identified at seven transformer sites at NCTAMSPAC. Removal actions were necessary for each of these transformer sites to protect human health and the environment from PCBs in soil. After the removal actions, the Navy and EPA have concluded that no further action is necessary to protect public health or welfare or the environment.

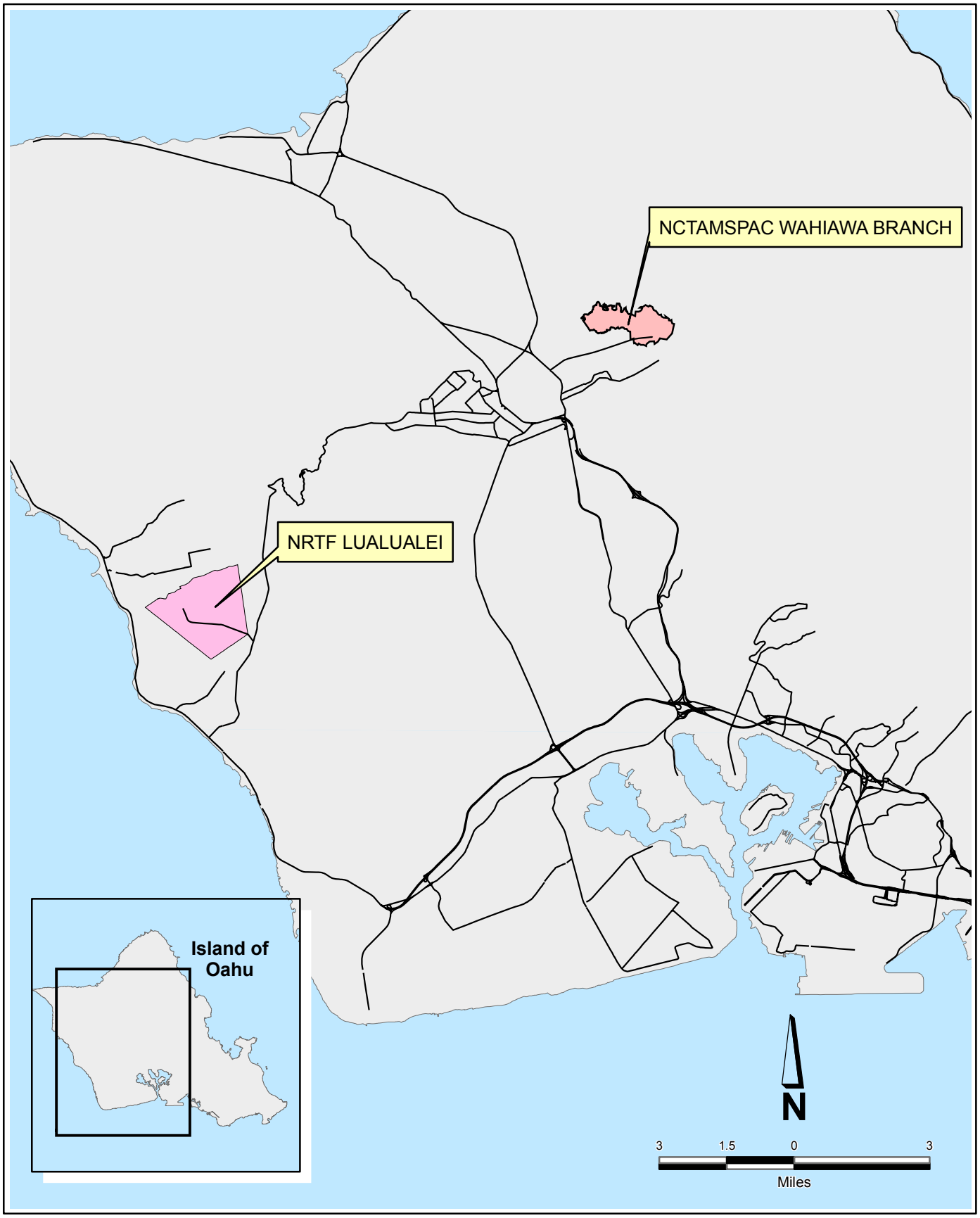

Figure 1
Facility Location Map
NCTAMSPAC Wahiawa Branch
and NRTF Lualualei
Oahu, Hawaii

1.4 DESCRIPTION OF THE SELECTED REMEDY

The Navy and EPA have selected no further action as the final remedy for these seven transformer sites. CERCLA NTCRAs were conducted at Building 236, Building 261, Building 1, Building 68, Former S84, and the FRS, consisting of excavation and on-island thermal desorption treatment of PCB-contaminated soil. Excavated soil was treated by thermal desorption at former Naval Air Station (NAS) Barbers Point, and the excavated areas were then backfilled with treated soil (except at Building 261, which was backfilled with coral fill and topsoil) and then were compacted and restored (such as landscaping, concrete and asphalt paving). A removal action was not required at Building 343 because initial sampling results were below the cleanup levels. The NTCRAs were conducted to reduce potential risks to human and ecological receptors to acceptable levels. Post-excavation confirmation sampling verified that PCB-contaminated soil had been removed and confirmed that established cleanup levels had been achieved. The removal of PCB-contaminated soil at concentrations that exceeded the cleanup levels achieved the removal action objective of protecting human health and the environment. As a result, the seven transformer sites are in a protective state for human health and the environment for unrestricted use, and no further action is necessary at these sites.

This decision is supported by documents in the AR for NCTAMSPAC. The restoration advisory board (RAB), composed of representatives of the DOH, EPA, Navy, and the community, provided review and comment leading to selection of this no further action decision.

1.5 STATUTORY DETERMINATIONS

The Navy is the lead agency for environmental cleanup at NCTAMSPAC pursuant to Executive Order 12080 and 12580, which authorizes the Navy to conduct CERCLA response actions such as the removal of PCB-contaminated soil and concrete at NCTAMSPAC in accordance with CERCLA Section 120, 42 U.S.C. sec. 9620. Pursuant to 10 U.S.C. sec. 2705, EPA is afforded an opportunity for timely review and comment before the Navy undertakes a removal action, and CERCLA Section 120 provides for the joint selection of remedial actions by the Navy and EPA. The DOH has also provided oversight during environmental investigations and cleanup activities on NCTAMSPAC.

The Navy and EPA jointly have concluded that no further action is needed after the CERCLA NTCRAs at Building 236, Building 261, and Building 343, located at NCTAMSPAC Wahiawa Branch, and at Building 1, Building 68, Former S84, and the FRS, located at NRTF Lualualei. The Navy and EPA further have concluded that these transformers sites are in a protective state for human health and the environment and meet criteria for unrestricted use; therefore, no further action is planned. This decision is reached because residual PCBs in soil at the transformer sites are below the Toxic Substances Control Act (TSCA) high-occupancy cleanup level (1 milligram per kilogram [mg/kg] for soil) found at 40 Code of Federal Regulations (CFR) 761.61(a)(4) and the DOH Tier 1 soil action level (SAL) (1 mg/kg) for unrestricted use (DOH 2005). The TSCA high-occupancy cleanup level (1 mg/kg) is an applicable or relevant and appropriate requirement (ARAR), and the DOH Tier 1 SAL (1 mg/kg) is a "to-be-considered" (TBC) criterion for the response actions completed at these sites. Through the NTCRAs conducted at Building 236, Building 261, Building 1, Building 68, Former S84, and the FRS, the toxicity, volume, and mobility of PCBs were reduced by excavating the soil and then treating the soil by thermal desorption. A removal action was not required at Building 343 because initial sampling results were below the cleanup levels.

The results of the completed NTCRAs indicate the seven transformer sites are environmentally suitable for unrestricted reuse, and the 5-year review requirement under CERCLA Section 121 (c) is not applicable.

1.6 AUTHORIZING SIGNATURES

The Navy and EPA have jointly selected the remedy described in this ROD and have determined that the no further action decision allows unrestricted land use at Building 236, Building 261, and Building 343, located at NCTAMSPAC Wahiawa Branch, and at Building 1, Building 68, Former S84, and the FRS, located at NRTF Lualualei, Oahu, Hawaii.

Aaron Y. Poentis
Regional Environmental Program Manager

9/25/07
Date

By direction of
Commander, Navy Region Hawaii

Michael Montgomery
Chief, Federal Facilities and Site Cleanup Branch
Superfund Division, U.S. Environmental Protection Agency, Region 9

Date

The State of Hawaii DOH concurs with the selected remedy as documented in the ROD.

Laurence K. Lau, Esq.
Deputy Director of Environmental Health
State of Hawaii, Department of Health

9/21/07
Date

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9/30/07
Date

The State of Hawaii DOH concurs with the selected remedy as documented in the ROD.

Laurence K. Lau, Esq.
Deputy Director of Environmental Health
State of Hawaii, Department of Health

Date

2. Decision Summary

2.1 SITE NAME, LOCATION, AND DESCRIPTION

NCTAMSPAC Wahiawa Branch occupies 700 acres on the central plateau of Oahu, west of the Koolau Mountains. It is located near the town of Wahiawa. Land use around the facility is primarily agricultural for pineapple cultivation. Three transformer sites are located at this installation (Figure 2):

- Building 236: The site includes Building 236 and surrounding grass.
- Building 261: The site includes Building 261 and the surrounding grass and asphalt.
- Building 343: The site includes Building 343 and the surrounding grass and concrete.

NRTF Lualualei occupies 1,700 acres within Lualualei Valley, near the southwest shore of Oahu. Four transformer sites are located at this installation (Figure 3):

- Building 1: The site consists of a transformer located on a concrete pad outside Building 1, which is surrounded by grass and a chain-link fence.
- Building 68: This site includes Building 68, which currently houses a transformer: it is surrounded by grass and a concrete pad.
- Former S84: The site includes an abandoned concrete pad (former transformer location), which is bordered on three sides by a chain-link fence and adjoins Building 84, and surrounding grass.
- Former Rigger Shop: The FRS includes the former building (the building has been demolished and the transformer has been removed) and its surrounding area.

2.2 SITE HISTORY AND ENFORCEMENT ACTIVITIES

2.2.1 Site History

Available historical records at NCTAMSPAC indicate PCBs were present in the dielectric fluid used in many of the former and existing transformers at NCTAMSPAC Wahiawa Branch and at NRTF Lualualei. The PCB-containing fluids may have been released to concrete surfaces or surface soil by leaking directly from the transformers or during regular transformer testing and maintenance. Periodic sampling was required to test the dielectric properties of the transformer fluid during operation of the transformers. Once testing was completed, the fluid was reportedly poured onto the adjacent area, such as grass, concrete pads, or along building walls. All of the active transformers at NCTAMSPAC have been replaced or retrofilled with non-PCB-containing dielectric fluid.

The following investigations were completed for transformers at NCTAMSPAC.

Initial Assessment Study (IAS). In 1986, an IAS was conducted by the Naval Energy and Environmental Support Activity (NEESA) at NCTAMSPAC (NEESA 1986). This IAS identified 25 transformer locations that required further investigation based on records of past maintenance practices; however, the IAS did not include sampling. Building 261 at NCTAMSPAC Wahiawa Branch and Building 68 at NRTF Lualualei were included in the IAS.

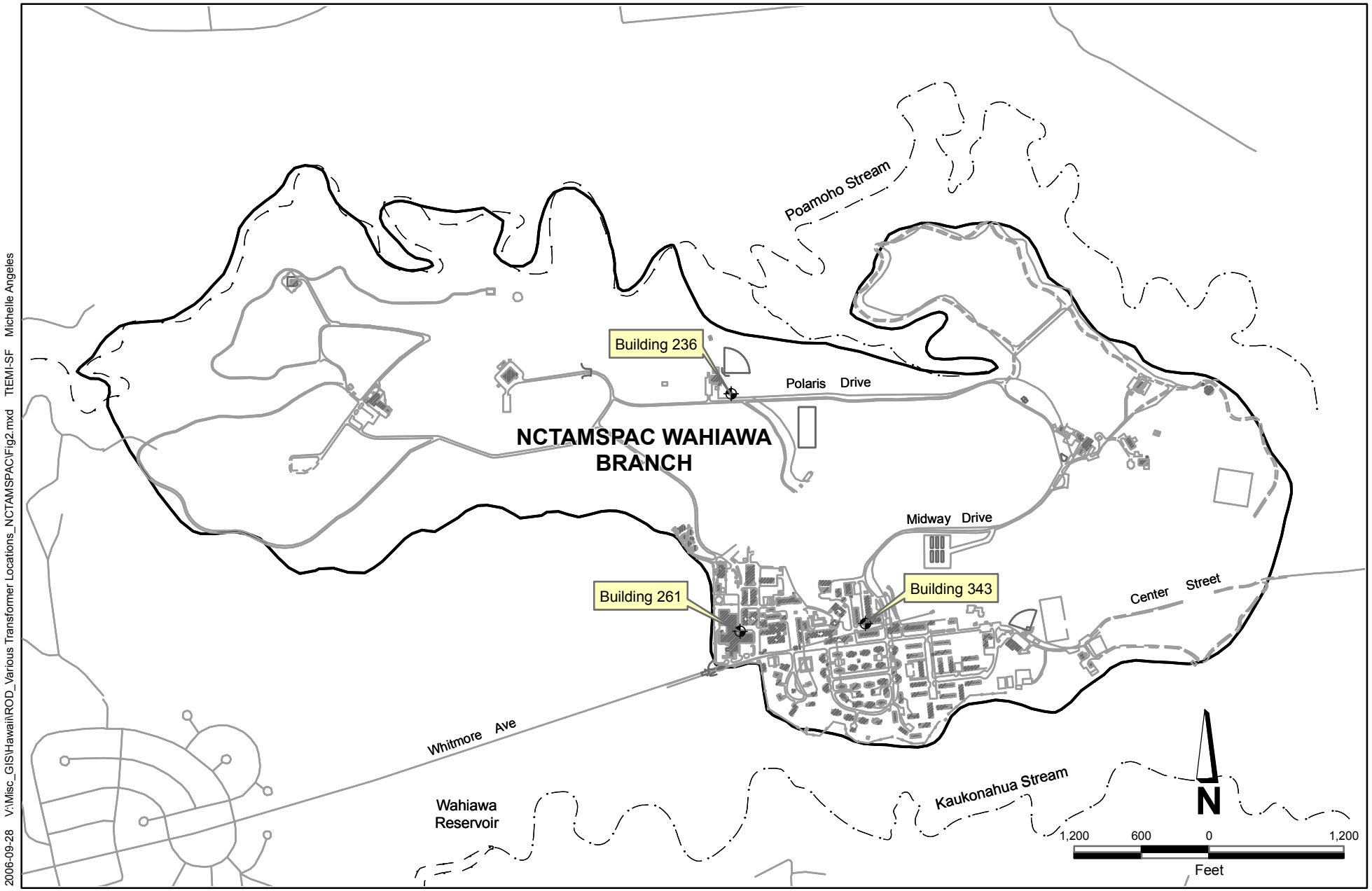

Figure 2
Transformer Site Location Map
NCTAMSPAC Wahiawa Branch
NCTAMSPAC, Oahu, Hawaii

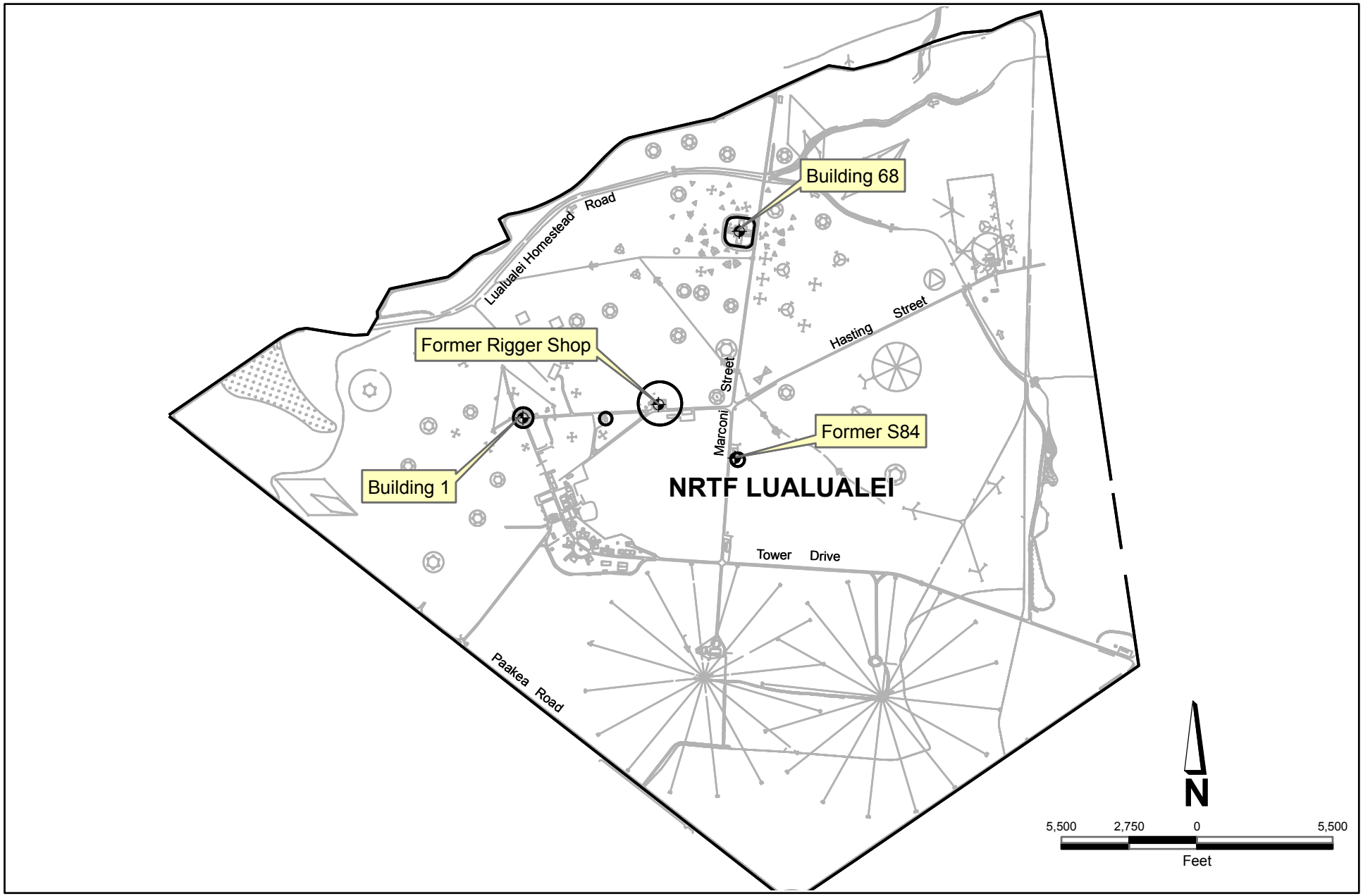

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Figure 3
Transformer Site Location Map
NRTF Lualualei
NCTAMSPAC, Oahu, Hawaii

Site Inspection (SI). In 1988, an SI was performed at the 25 transformer locations identified in the IAS, including Building 261 at NCTAMSPAC Wahiawa Branch and Building 68 at NRTF Lualualei. Soil samples were collected from the transformer locations to assess the extent of PCB contamination. Elevated PCB concentrations were detected in soil samples from Building 261 and Building 68 that exceeded cleanup levels. Elevated chlordane concentrations were also detected in soil samples collected from Building 261 (Harding Lawson Associates 1989, 1992).

Site Inspection (SI). In 1991, an SI was performed at two additional transformer locations, including Building 236 at NCTAMSPAC Wahiawa Branch. Building 236 was not previously identified in the 1986 IAS. Building 236 first appeared on a list of PCB-containing transformers in November 1988, after testing the transformer revealed PCB concentrations greater than cleanup levels. SI sampling at Building 236 indicated that PCBs were detected at levels that exceeded the cleanup levels. A maximum PCB concentration in a surface soil sample of 4.12 mg/kg was detected at this site (Harding Lawson 1992).

Removal Action. In 1991, the Navy conducted a removal action to address PCB contamination at 12 transformer locations at NCTAMSPAC Wahiawa Branch. This removal action also included additional sampling to further characterize the nature and extent of PCB contamination at Building 261 and Building 236. The sampling results indicated that elevated PCB concentrations were present in the soil at Buildings 261 and 236; however, the contaminated soil was not removed during this removal action because further delineation of the sites was necessary (PRC Environmental Management, Inc. [PRC] 1992). Building 68 at NRTF Lualualei was not included in this removal action.

Relative Risk Ranking Study. In 1995, the Navy ranked the relative risk of four transformer locations, including Building 343 at NCTAMSPAC Wahiawa Branch. Navy Public Works Center (PWC) collected surface soil and concrete samples and analyzed them for PCBs. The analytical data, although not of the quality required to accurately assess contamination levels, indicated the presence of PCBs at Building 343.

Worker Safety, Military Construction (MILCON) Project P-160. In 1995 and 1996, the Navy PWC collected surface soil and concrete wipe samples from the sidewalk near Building 343 at NCTAMSPAC Wahiawa Branch. The samples were screened for PCBs to address potential worker safety issues related to PCB exposure in the area in support of MILCON Project P-160, Bachelor Enlisted Quarters Modernization of Building 321. The surface soil and concrete wipe samples contained non-detectable levels of PCBs (did not exceed 1 mg/kg and did not exceed 1.0 micrograms per 100 square centimeters); however, data was considered to be not of sufficient quality to conclude that contamination did not exist.

Engineering Evaluation/Cost Analysis (EE/CA) and Action Memorandum (AM). In 1998, an EE/CA (Earth Tech, Inc. [Earth Tech] 1998) was prepared to evaluate removal action alternatives to address PCB contamination at transformers at NCTAMSPAC. Of the seven transformer sites presented in the EE/CA, only two (Building 261 and Building 343 at NCTAMSPAC Wahiawa Branch) are discussed in this ROD.

The EE/CA recommended a removal action consisting of excavation of PCB-contaminated soil and concrete and disposal in an off-island landfill. An AM (DON 1999) documented the Navy's decision to conduct NTCRAs at the transformer sites. This EE/CA and AM did not include Building 236 located at NCTAMSPAC Wahiawa Branch, or Building 1, Building 68, Former S84, or the FRS, located at NRTF Lualualei.

NTCRA. A NTCRA was conducted at Building 261 at NCTAMSPAC Wahiawa Branch from October 1998 to February 2000 to remove PCB-contaminated soil, as identified in the EE/CA. A removal action was not required at Building 343 because both the initial immunoassay and the verification results were below the cleanup levels for soil and concrete. A total of 109 cubic yards (cy) of PCB-contaminated soil was excavated from Building 261 and stockpiled at NRTF Lualualei pending thermal desorption treatment at former NAS Barbers Point. The excavated area was then backfilled with clean coral fill and topsoil and then was compacted and restored (such as landscaping, concrete and asphalt paving). Treated soil from Building 261 was used as backfill at other transformer sites undergoing removal actions (Earth Tech 2007).

Treatment EE/CA and AM. In 2000, the Navy, in consultation with the EPA and the DOH, determined that soil from multiple transformer sites from multiple naval facilities across Oahu could be consolidated for treatment and this action could be considered an on-site action. Based on this decision, treatment alternatives were evaluated in a treatment EE/CA prepared in September 2000 (Earth Tech 2000a) for the combined sites. The EE/CA recommended consolidating soils from three facilities (former NAS Barbers Point, Pearl Harbor Naval Complex [PHNC], and NCTAMSPAC) and treating the soil with thermal desorption.

Prior to implementation of the treatment process, soil that was already excavated was stockpiled either at former NAS Barbers Point or at NRTF Lualualei. Once the treatment process began, these stockpiles were transported to the treatment unit located at former NAS Barbers Point. An AM (DON 2000) documented the Navy's decision to undertake removal actions at these facilities. Various alternatives were evaluated against the nine criteria in the NCP. Excavation and on-island thermal desorption was the alternative selected to address soil containing PCB concentrations greater than the TSCA cleanup level for high-occupancy areas (1 mg/kg) and the DOH Tier 1 SAL (1 mg/kg); it complied with ARARs and TBC criteria; it was protective; and it was capable of meeting the established treatment objectives for PCB-contaminated media.

In 2002, an AM addendum (DON 2002) documented procedures for the excavation, treatment, and final placement of PCB-contaminated soil and concrete from transformer sites not originally considered in the 2000 AM (DON 2000) or any of the previous EE/CAs or AMs prepared for former NAS Barbers Point, PHNC, and NCTAMSPAC. The AM addendum proposed site selection criteria for new sites that will be remediated using the removal action alternatives selected in the previous AMs because the conditions at these new sites are consistent with the conditions at the sites in the previous AMs. Although this AM addendum presented the general criteria for inclusion of a transformer site, site-specific information was to be included as an attachment to the AM addendum, and thereby "plugged in" to the document. This "plug-in" AM addendum allowed for the selection of a protective, presumptive cleanup action (excavation, treatment, and placement) at future PCB transformer sites, provided that the sites met the selection criteria.

2001 SI. In November and December 2001, an SI was conducted at various transformer locations at NCTAMSPAC, including Building 236 at NCTAMSPAC Wahiawa Branch and at Buildings 1, 68, Former S84, and FRS at NRTF Lualualei. Historical data existed for some of the transformers; however, soil samples were collected for other transformers without historical data. Based on sampling results that exceeded cleanup levels, Building 236 at NCTAMSPAC Wahiawa Branch and Buildings 1, 68, Former S84, and FRS at NRTF Lualualei were recommended for further action (Earth Tech 2002).

Plug-In AM. In March 2003, a "plug-in" to the AM addendum (DON 2003) was prepared recommending that Building 236, Building 1, Building 68, Former S84, and the FRS undergo a NTCRA consisting of excavation followed by on-island thermal desorption treatment, and transport and placement of treated media back at the excavation sites (DON 2003).

Removal Action Design Support and Confirmation Sampling. From 2003 to 2004, preliminary sampling was conducted to support the design efforts for the removal action at various transformer locations, including Building 236 at NCTAMSPAC Wahiawa Branch and Buildings 1, 68, Former S84, and FRS at NRTF Lualualei. Pre-excavation samples were collected to define the lateral and vertical extent of PCB contamination in soils at concentrations that exceeded the cleanup level (1 mg/kg) before soil was excavated and treated at former NAS Barbers Point (Earth Tech 2003).

NTCRAs. NTCRAs were conducted at Building 236 at NCTAMSPAC Wahiawa Branch and at Building 1, Building 68, Former S84, and the FRS at NRTF Lualualei from March 2004 to May 2004. A total of 1.5 bank cubic yards (bcy) of PCB-containing soil was excavated from Building 236; 5 bcy from Building 1; 107.1 bcy from Building 68; 488.9 bcy was excavated from Former S84; and 7.7 bcy was excavated from the FRS. The soil from the transformer sites was transported to former NAS Barbers Point to the thermal desorption unit for treatment. During the thermal desorption treatment process, four confirmation samples of the treated material were collected for every 100 tons treated. Once confirmation was received, the excavated areas were then backfilled with treated soil from the treatment system (except for Building 236, which was backfilled with coral fill and topsoil) and then was compacted and restored (such as landscaping, concrete and asphalt paving) (Environmental Chemical Corporation [ECC] 2007).

2006 Revised SI. In 2006, a revised SI was prepared to provide an update on removal action activities that had occurred at various transformer sites at NCTAMSPAC since 2001 (Earth Tech 2006a). The revised SI concluded that cleanup levels for PCBs were met at Building 236 at NCTAMSPAC Wahiawa Branch and at Buildings 1, 68, Former S84, and FRS at NRTF Lualualei and no further action is necessary (Earth Tech 2006a).

Remediation Verification Report (RVR). After the NTCRAs were completed, RVRs were prepared to document that the NTCRAs were successfully completed and the cleanup level of 1 mg/kg was achieved for soil at these transformer sites (Earth Tech 2006b, ECC 2007), as established in the AM (DON 2002) and in accordance with the TSCA high-occupancy cleanup level (1 mg/kg for soil) and the DOH Tier 1 SAL (1 mg/kg). This RVR was ultimately included in a consolidated RVR prepared to document removal and treatment at all sites included in the treatment system (Earth Tech 2007).

2.2.2 Enforcement Activities

There have been no enforcement activities at Building 236, Building 261, or Building 343 at NCTAMSPAC Wahiawa Branch or Building 1, Building 68, Former S84, or the FRS at NRTF Lualualei.

2.3 COMMUNITY PARTICIPATION

Public participation in decision making for environmental activities at NCTAMSPAC has been encouraged continuously throughout the environmental restoration and site closure processes. In an effort to involve the public in the decision-making process, RABs for Central Oahu and Waianae Coast and Lualualei were established in 1996. The RABs are composed of representatives of DOH, EPA, the Navy, and the community. The Navy has held periodic RAB meetings and other public meetings, and has issued fact sheets that summarize the site investigation and cleanup. In addition, the Navy established contacts for the public at Naval Facilities Engineering Command, Hawaii (NAVFAC Hawaii).

A notice of availability for the proposed plan (DON 2006) for the transformer sites was published in the *Honolulu Advertiser* and *Star Bulletin* on June 25, 2006. The proposed plan was made available for public comment during a 30-day review period from June 27, 2006, to July 26, 2006. In addition,

public meetings were conducted on July 20, July 24, and July 25, 2006, to present the proposed plan. At these meetings, the Navy answered questions about the transformer sites and the no further action decision. No written comments were received during the comment period.

Project documents — including work plans, technical reports, fact sheets, and other materials relating to NCTAMSPAC investigations — can be found in the information repositories for NCTAMSPAC at the following locations:

Wahiawa Public Library
820 California Avenue
Wahiawa, Hawaii 96786
Telephone: (808) 622-6345

Waianae Public Library
85-625 Farrington Hwy
Waianae, Hawaii 96792
Telephone: (808) 697-7868

Additional project information is included in the AR file located at NAVFAC Pacific (NAVFAC PAC) in Pearl Harbor:

Naval Facilities Engineering Command, Pacific
258 Makalapa Drive, Suite 100
Attn: NAVFAC PAC EV4
Pearl Harbor, Hawaii 96860-3134

2.4 SCOPE AND ROLE OF THE RESPONSE ACTION

Seven transformer sites are located at NCTAMSPAC. Removal actions were necessary at Building 236, Building 261, Building 1, Building 68, Former S84, and the FRS to protect human health and the environment from PCBs in soil. A removal action was not required at Building 343 because initial sampling results were below the cleanup levels.

NCTAMSPAC is listed on the NPL, which identifies priorities among known releases or threatened releases of hazardous substances, pollutants, or contaminants throughout the United States and its territories. A Federal Facilities Agreement (FFA) is currently being finalized for NCTAMSPAC. Through the FFA, the Navy, the EPA, and the DOH agree to the following:

- Ensure that environmental impacts associated with past and present activities conducted are thoroughly investigated and appropriate remedial actions taken, as necessary, to protect public health, welfare, and the environment;
- Establish a procedural framework and schedule for developing, implementing, and monitoring appropriate response actions in accordance with CERCLA, SARA, the NCP, Superfund guidance and policy, Resource Conservation and Recovery Act (RCRA) guidance and policy, and applicable State of Hawaii law;
- Facilitate cooperation, exchange of information, and participation of the Navy, EPA, and DOH; and
- Ensure adequate assessment of potential injury to natural resources necessary to ensure that response actions appropriate for achieving suitable cleanup levels are implemented.

The cleanup activities and no further action decision for Building 236, Building 261, Building 343 at NCTAMSPAC Wahiawa Branch and for Building 1, Building 68, Former S84, and the FRS at NRTF Lualualei are designed to fulfill the proposed objectives of the FFA for NCTAMSPAC. In accordance with the FFA, no further action is appropriate for sites where no current or potential unacceptable risk to human health or the environment exists. Based on results for post-excavation confirmation soil samples presented in the consolidated RVR (Earth Tech 2007) documenting the NTCRAs, as well as the proposed plan (DON 2006), the Navy, EPA, and DOH concluded that the CERCLA NTCRAs have successfully lowered risks to human health and the environment and that the no further action decision allows unrestricted use at these seven transformer sites.

2.5 SITE CHARACTERISTICS

2.5.1 Site Location and Description

NCTAMSPAC consists of two study areas on the island of Oahu: NCTAMSPAC Wahiawa Branch, and NRTF Lualualei. NCTAMSPAC operates and maintains communication facilities and equipment for Navy shore installations, fleet units in the Pacific, and the Defense Communications System. NCTAMSPAC Wahiawa Branch serves as the main receiving station, and NRTF Lualualei is the main transmitting facility.

An EE/CA (Earth Tech 1998) was prepared in January 1998 to evaluate removal action alternatives to address PCBs in soil and concrete at seven transformer sites (S-17, Building 106, Building 242, Building 261, and Building 343 at NCTAMSPAC Wahiawa Branch and S-26 at NRTF Lualualei) at NCTAMSPAC. Of the seven transformer sites originally presented in the 1998 EE/CA, only two (Building 261 and Building 343) are discussed in this ROD. As part of the 1998 EE/CA, conceptual site models (CSM) were developed for each of the transformer sites based on the following:

- Location and type of transformers located at each site;
- Known or suspected mechanism of PCB release into the environment;
- Known or suspected media (soil and concrete) that may be affected; and
- Potential migration pathways to human and ecological receptors.

The CSMs developed for the transformers identified the following site characteristics:

Location and Type of Transformers. The physical setting of each of the seven transformer sites identified in the 1998 EE/CA was based on descriptions provided by previous investigations, reviews of as-built or plan drawings, and site reconnaissance. Of the transformer sites discussed in this ROD, only two PCB-containing transformers — located at Building 261 and Building 343 — were originally identified in the EE/CA.

Sources of PCB Contamination. Sources of PCB contamination at these transformer sites are a result of: (1) testing and previously disposing of PCB dielectric fluid from the transformers onto the surrounding soils; and (2) leaking PCB dielectric fluid from the transformers onto the surrounding soil or concrete pad. These sources are considered the principal mechanisms of release for PCBs at these transformer sites. PCBs are generally insoluble and tend to sorb to soil particles, making PCB transport by leaching unlikely. The primary mechanism for the transport of PCBs was erosion by surface runoff. Transport of PCBs sorbed to soil particles was possible in areas eroded by surface runoff; however, surface erosion was minimal in the areas surrounding these transformers sites because of the gentle slopes and vegetative cover.

Affected Media. The potentially affected media was surface and subsurface soil and concrete in the immediate vicinity of the transformer sites. All previous investigations involved surface soils or concrete only; therefore, the depth of PCB contamination was not known for any of the transformer sites identified in the 1998 EE/CA. A previous removal action conducted at transformer sites at NCTAMSPAC in 1991 indicated that higher PCB concentrations in the surface soils tend to correlate with an increased depth of contamination (PRC 1992). A correlation could not be made that equates surface soil contamination levels to depth of contamination. The 1998 EE/CA assumed that surface soil contamination below 50 mg/kg would require a 1-foot excavation and greater than 50 mg/kg will require a 2-foot excavation to evaluate removal action options consistently. Actual excavation depths were established during verification sampling. Contamination of surface water and groundwater was considered unlikely because of the low solubility of PCBs and the depth of groundwater. As a result, groundwater samples were not collected because there was no indication that PCBs had migrated to groundwater based on the depth of PCB contamination in soil and the depth to groundwater.

Following removal actions at these seven transformer sites, PCB concentrations do not exceed the cleanup levels established for these sites; therefore, there is no affected surface or subsurface soils at the seven transformer sites.

Known and Potential Routes of Exposure. The primary route of exposure was direct contact with contaminated soil or concrete, either through the skin or by incidental ingestion. Contact with contaminated airborne dust or eroded soil particles in surface runoff were unlikely because of the vegetative or asphalt cover; however, dust generated by construction or removal activities was of concern. Controls were implemented to minimize airborne PCB transport if vegetation or asphalt was disturbed through construction or removal activities. Given the low volatility of PCBs, transport in the gaseous phase was not considered a significant mechanism. PCBs are nearly insoluble and have a strong tendency to sorb to soil particles, making it unlikely that PCBs have affected groundwater. Exposure to PCB-contaminated groundwater was therefore considered unlikely.

Following removal actions at these seven transformer sites, PCB concentrations do not exceed cleanup levels established for these sites; therefore, there are no known or potential routes of exposure at the seven transformer sites.

Known or Potential Human and Environmental Receptors. Access to NCTAMSPAC Wahiawa Branch and NRTF Lualualei is restricted to employees of the Navy, their dependents, and contractors. Employees and contractors who routinely enter the vicinity of the transformer sites were potentially exposed to contaminated soil through incidental ingestion, direct dermal contact, or dust inhalation. Human exposure to contaminated air was possible if work generates fugitive dust. Surrounding areas at NCTAMSPAC Wahiawa Branch and NRTF Lualualei support a limited ecological environment.

Following removal actions at these seven transformer sites, PCB concentrations do not exceed cleanup levels established for these sites; therefore, there are no exposure concerns to any known or potential human or environmental receptors at the seven transformer sites.

Nature and Extent of Contamination at the Seven Transformer Sites. The nature and extent of contamination were delineated by incorporating the physical setting and CSM for the transformer sites with the results of available previous sampling results to estimate the areas of potential contamination (AOPC) at each of the seven transformer sites. In cases where the sampling data were insufficient or nonexistent, assumptions were made about the extent of contamination. Since the 1998 EE/CA was finalized and after discussions with EPA and DOH, the Navy determined that soil from multiple transformer sites could be consolidated for treatment based on similar characteristics

to the sites evaluated in the 1998 EE/CA. Therefore, the evaluations in the 1998 EE/CA would apply to the additional transformer sites identified for treatment.

Removal actions were conducted at these seven transformer sites. Based on post-excavation confirmation sampling results, PCB concentrations remaining at these sites do not exceed the cleanup levels established for these sites; therefore, the seven transformer sites are suitable for unrestricted use.

2.5.2 Sensitive Populations, Habitats, and Natural Resources

No sensitive populations, habitats, or natural resources have been seen in the vicinity of the transformer sites.

2.6 CURRENT AND POTENTIAL FUTURE SITE AND RESOURCE USES

Current Use. The pre-removal action land use for the seven transformer sites at NCTAMSPAC was low-occupancy (restricted) use. NCTAMSPAC is a Naval communications facility composed of two physically separate installations. NCTAMSPAC Wahiawa Branch serves as the receiving station and NRTF Lualualei is the transmitting facility. All seven transformer sites were active prior to removal actions, although PCBs were no longer used.

Future Use. The post-removal action and future land use of the seven transformer sites at NCTAMSPAC is anticipated to remain unchanged from current conditions. The Navy will maintain NCTAMSPAC for use as a communications facility, which is considered low-occupancy (restricted) use; however, the potential for high-occupancy (unrestricted) use was also considered at these seven transformer sites. Potential future on-site populations will be limited to Navy contractor personnel performing routine maintenance and periodic inspections of the transformers, and performing any necessary repairs. Currently, there are no plans to change the current land use status of the seven transformer sites at NCTAMSPAC.

2.7 SUMMARY OF SITE RISKS

The primary risks to human health and the environment at these seven transformer sites are posed by the presence of PCBs in soil. The PCB-containing fluids may have been released to surface soil by leaking directly from the transformers or during regular transformer testing and maintenance. Transformer maintenance included periodic sampling to test the dielectric properties of the transformer fluid. Once testing was completed, the fluid was reportedly poured onto the adjacent areas, such as the grass, concrete pad, or building wall. Data from sampling previously conducted by the Navy confirmed the presence of PCB contamination at these sites.

In addition, historical information available to the Navy indicated that chlordane was collocated with PCBs in the soil as a result of its use for termite control around Building 261 at NCTAMSPAC Wahiawa Branch. The presence of chlordane was confirmed through initial soil sampling. Although chlordane was used at Building 261 in accordance with manufacturer recommendations, once the soil was removed, treatment and disposal options for chlordane still needed to be considered. A definitive demonstration test (DDT) was completed before the thermal desorption treatment. One of the purposes of the DDT was to demonstrate that the thermal desorption process could successfully treat the contaminants of concern (COC) to levels below the project cleanup goals (1 mg/kg for PCBs in soil and 1.6 mg/kg for chlordane in soil [EPA residential preliminary remediation goal (PRG)]). Once the DDT demonstrated that COCs could be successfully treated to levels below project cleanup goals, only PCBs were measured in post-treatment soil, during normal operations. This approach was selected because PCBs have the highest boiling point and PCBs are the most persistent contaminant of all the COCs; therefore, if PCBs were successfully removed, then it was

presumed that the other COCs were also successfully removed from the soil. Representative soil was chosen for the DDT from Building 261 that contained both PCBs and chlordane. Before and after the DDT, soil with chlordane from Building 261 was also treated as part of the overall treatment of PCB-contaminated soil. Soil samples were collected after treatment and were analyzed for both PCBs and chlordane for soils known to contain chlordane. Sample results confirmed the reasoning that once PCB concentrations were reduced to the cleanup level (1 mg/kg), chlordane concentrations in soil were also reduced to the cleanup level (1.6 mg/kg [EPA residential PRG]).

PCBs are listed and regulated as hazardous substances under CERCLA. Human and animal exposure to PCBs can result in adverse health effects, including chloracne (a dermal reaction), liver damage, suppression of development and reproduction, and possible cancer. PCBs accumulate in plant tissue, but are not known to adversely affect plants (Earth Tech 1998).

The health risk posed by exposure to PCBs takes into account contaminant concentrations, potential exposure pathways, and current land use. The risk evaluation conducted in the 1998 EE/CA (Earth Tech 1998) concluded that a removal action was justified to eliminate any actual or potential risk of human exposure to PCBs. Since the 1998 EE/CA was finalized and after discussions with EPA and DOH, the Navy concluded that soil from multiple transformer sites, including at NCTAMSPAC, could be consolidated for treatment based on similar site characteristics.

The seven transformer sites at NCTAMSPAC that are represented in this ROD were consolidated since they fulfilled the requirements for NTCRAs that were laid out in the AM and its subsequent addenda (DON 2000, 2002, 2003).

The NTCRAs included removal of soil with PCBs at concentrations above the cleanup levels followed by thermal desorption treatment of the excavated soil. Afterward, post-excavation confirmation samples were collected to evaluate whether the cleanup levels had been achieved and to confirm that the sites are suitable for unrestricted use (Earth Tech 2006b). All PCB concentrations detected in the post-excavation confirmation samples do not exceed the cleanup level of 1 mg/kg for soil as established in the AM (DON 2002) and in accordance with the TSCA high-occupancy cleanup level (1 mg/kg) and DOH Tier 1 SAL (1 mg/kg) (Earth Tech 2006b). A removal action was not required at Building 343 because initial sampling results did not exceed the cleanup levels. As a result of the removal actions or based on initial sampling, these transformers sites no longer pose a risk to human health and the environment, and all seven transformer sites at NCTAMSPAC are suitable for unrestricted use.

2.8 RESPONSE ACTION SUMMARY

Building 236, Building 261, Building 343, Building 1, Building 68, Former S84, and the FRS were identified as a potential concern based on available historical records and information on PCBs in the dielectric fluid and potential leaks and historical maintenance practices. Elevated concentrations of PCBs in soils were confirmed in the previous investigations at the sites. A removal action was not required at Building 343 because both the initial immunoassay and the verification results were below cleanup levels. NTCRAs were conducted at the remaining transformer sites as presented in Table 1. The table incorporates the conclusions documented in the RVRs (Earth Tech 2007 and; ECC 2007). Detailed information, including site-specific activities, verification sample laboratory reports, and validated data, is presented in the RVRs.

Table 1: Summary of Removal Actions at Seven Transformer Sites at NCTAMSPAC

Facility	Site	Excavation Dates	Removal Action Summary	Removal Action Final Volume[1]	Soil Cleanup Levels and Concrete Action Levels for PCBs	Cleanup Level Results
NCTAMSPAC Wahiawa Branch	236	28Apr04	One excavation event was conducted at this site.	In total, 1.5 bcy of soil was excavated and 2 lcy treated.	1 mg/kg (soil)	All soil confirmation sample results do not exceed the cleanup level (1 mg/kg).
NCTAMSPAC Wahiawa Branch	Building 261 (Subsite A)	23Nov99; 5Jan00 – 12Jan00; 8Feb00	Three excavation events were conducted at this site.	Approximately, 4 cy of soil was excavated.	1 mg/kg (soil)	All soil verification sample results do not exceed the cleanup level (1 mg/kg).
NCTAMSPAC Wahiawa Branch	Building 261 (Subsite B)	5Oct98 – 6Oct98; 27Jul99	Two excavation events were conducted at this site.	Approximately, 19 cy of soil was excavated.	1 mg/kg (soil)	All soil verification sample results do not exceed the cleanup level (1 mg/kg).
NCTAMSPAC Wahiawa Branch	Building 261 (Subsite C)	23Jul99 – 26Jul99	One excavation event was conducted at this site.	Approximately, 16 cy of soil was excavated.	1 mg/kg (soil)	All soil verification sample results do not exceed the cleanup level (1 mg/kg).
NCTAMSPAC Wahiawa Branch	Building 261 (Subsite D)	5Oct98 – 7Oct98; 29Jul99; 23Nov99	Three excavation events were conducted at this site.	Approximately, 28 cy of soil was excavated.	1 mg/kg (soil)	All soil verification sample results do not exceed the cleanup level (1 mg/kg).
NCTAMSPAC Wahiawa Branch	Building 261 (Subsite E)	29Sep99; 5Oct99; 24Nov99	Three excavation events were conducted at this site.	Approximately, 42 cy of soil was excavated.	1 mg/kg (soil)	All soil verification sample results do not exceed the cleanup level (1 mg/kg).
NCTAMSPAC Wahiawa Branch	Building 343	N/A	No removal action was necessary for this site. Preliminary soil and concrete testing do not exceed cleanup goals.	None	1 mg/kg (soil) 10 µg/100 cm^2 (concrete)	All soil and concrete verification sample results do not exceed the cleanup levels (1 mg/kg and 10 µg/100 cm^2).
NRTF Lualualei	Building 1	08Mar04; 29Apr04	Excavation and overexcavation were conducted at this site.[2]	In total, 5 bcy of soil was excavated and 6.5 lcy treated (includes overexcavated volume).	1 mg/kg (soil)	All soil confirmation sample results do not exceed the cleanup level (1 mg/kg).
NRTF Lualualei	Building 68	08Mar04; 19May04	Excavation and overexcavation were conducted at this site.[2]	In total, 107.1 bcy of soil was excavated and 139.2 lcy treated (includes overexcavated volume).	1 mg/kg (soil)	All soil confirmation sample results do not exceed the cleanup level (1 mg/kg).
NRTF Lualualei	Former S84	09Mar04 – 29Apr04; 03May04	Excavation and overexcavation were conducted at this site.[2]	In total, 488.9 bcy of soil was excavated and 635.6 lcy treated (includes overexcavated volume).	1 mg/kg (soil)	All soil confirmation sample results do not exceed the cleanup level (1 mg/kg).

Table 1: Summary of Removal Actions at Seven Transformer Sites at NCTAMSPAC (Continued)

Facility	Site	Excavation Dates	Removal Action Summary	Removal Action Final Volume[1]	Soil Cleanup Levels and Concrete Action Levels for PCBs	Cleanup Level Results
NRTF Lualualei	FRS	23Mar04	One excavation event was conducted at this site.	In total, 7.7 bcy of soil was excavated and 10 lcy treated.	1 mg/kg (soil)	All soil confirmation sample results do not exceed the cleanup level (1 mg/kg).

Notes:
[1] The volume difference between excavation (measured in bcy) and treated (measured in lcy) is due to the thermal desorption process that increases the pore spaces and voids within the soil.
[2] Overexcavation was conducted when post excavation confirmation sampling results were above the cleanup levels. This consisted of collecting soil samples laterally and vertically at the site until the cleanup levels were achieved and then excavating the site to the newly established excavation limits.
bcy = bank cubic yard
cy = cubic yard
lcy = loose cubic yard
mg/kg = milligram per kilogram
PCB = polychlorinated biphenyl

Upon completion of the NTCRAs at Building 236, Building 261, Building 1, Building 68, Former S84, and the FRS, post-excavation confirmation soil samples verified that PCB concentrations in the soil do not exceed cleanup or actions levels established for these sites. A cleanup level of 1 mg/kg for soil was established in the AM (DON 2002a) and complies with the TSCA high-occupancy cleanup level (1 mg/kg for soil) and the DOH Tier 1 SAL (1 mg/kg). Analytical results indicate that PCB concentrations for all final post-excavation confirmation samples collected at these transformer sites do not exceed the cleanup level of 1 mg/kg.

2.9 NO FURTHER ACTION REQUIRED

No further action is required at the seven transformer sites to be protective of human health and the environment. Removal actions have met the objectives of removing PCBs to acceptable cleanup levels. Removal of PCB-contaminated soil at concentrations that exceed cleanup levels mitigated risks of potential exposure to PCBs by future residents and industrial workers, prevented off-site migration of PCBs, and reduced harm to human health and the environment from bioaccumulation of PCBs in the food chain. The removal action objectives have been met, and no further action is required to be protective of human and ecological receptors.

2.10 DOCUMENTATION OF SIGNIFICANT CHANGES

Building 67 was previously identified in the proposed plan (DON 2006) as a no further action site at NCTAMSPAC; however, bulk concrete samples were later collected from the concrete pad at Building 67 and compared to cleanup levels (1 mg/kg) for soil and bulk concrete samples. Analytical results indicated that PCB concentrations in the bulk concrete samples exceed 1 mg/kg; therefore, Building 67 has been deleted from this no further action ROD and will be presented in a separate ROD.

3. Responsiveness Summary

The public comment period for the proposed plan was held between June 27, 2006 and July 26, 2006. A public meeting for the proposed plan was held on July 20, 2006. No written comments were received.

3.1 COMMUNITY PREFERENCES

No community preferences were requested or identified.

3.2 INTEGRATION OF COMMENTS

No public comments were received on the proposed plan.

4. References

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